

IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his)
capacity as ATTORNEY GENERAL)
OF THE STATE OF OKLAHOMA and)
OKLAHOMA SECRETARY OF THE)
ENVIRONMENT C. MILES TOLBERT,)
in his capacity as the)
TRUSTEE FOR NATURAL RESOURCES)
FOR THE STATE OF OKLAHOMA,)

Plaintiff,)

vs.)

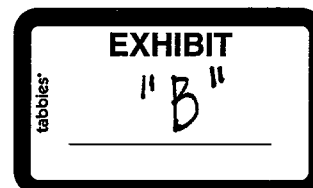
4:05-CV-00329-TCK-SAJ

TYSON FOODS, INC., et al,)

Defendants.)

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THE VIDEOTAPED DEPOSITION OF
VALERIE HARDWOOD, PhD, produced as a witness on
behalf of the Defendants in the above styled and
numbered cause, taken on the 18th day of July, 2008,
in the City of Tulsa, County of Tulsa, State of
Oklahoma, before me, Lisa A. Steinmeyer, a Certified
Shorthand Reporter, duly certified under and by
virtue of the laws of the State of Oklahoma.

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<p>1 would that have been included in your report?</p> <p>2 A No, because the MAN-BC-7A, that was all</p> <p>3 reported back when the first analysis was done, and</p> <p>4 we talked about it in the hearing, that particular</p> <p>5 sampling. 09:35AM</p> <p>6 Q Okay, but it sounds like here they've tested</p> <p>7 it again; right?</p> <p>8 A Yeah. I think she ran it through again just</p> <p>9 to make sure we were getting no positives.</p> <p>10 Q Okay, and this test would not have been 09:35AM</p> <p>11 included in the data that was reported to you</p> <p>12 officially?</p> <p>13 A It doesn't sound like it, but I'd have to look</p> <p>14 and see if it was.</p> <p>15 Q Are you aware of any other instances in which 09:35AM</p> <p>16 North Wind tested samples that weren't included in</p> <p>17 the official data reports?</p> <p>18 A Not to the best of my recollection.</p> <p>19 Q Let's move on to Subtask 2 back on I think it</p> <p>20 was -- 09:35AM</p> <p>21 A Exhibit 3?</p> <p>22 Q Yes. I should write the numbers down so I'll</p> <p>23 get them right. Subtask 2, which is on Page 2,</p> <p>24 refers to reference laboratory validation. Do you</p> <p>25 see that? 09:36AM</p> <p style="text-align: center;">30</p>	<p>1 A Yes, I have worked with Mike. I've worked</p> <p>2 with Mike mostly on -- I've not -- just to clarify,</p> <p>3 I haven't co-authored anything with him, but I have</p> <p>4 worked with him on a book and worked with him on</p> <p>5 various microbial search tracking and environmental 09:37AM</p> <p>6 microbiology panels, expert workshop panels and</p> <p>7 things like that.</p> <p>8 Q Now, what exactly was he retained to do?</p> <p>9 A Mike's laboratory is going to utilize the qPCR</p> <p>10 assay and cross test some of the same samples that 09:38AM</p> <p>11 North Wind tested.</p> <p>12 Q They're not going to recreate the entire North</p> <p>13 Wind process?</p> <p>14 A That's correct.</p> <p>15 Q Now, did you -- I take it you spoke with him 09:38AM</p> <p>16 in person about this?</p> <p>17 A That's correct.</p> <p>18 Q And you explained your procedure to him?</p> <p>19 A Actually -- well, I very briefly explained the</p> <p>20 procedure to him, and then the details of the 09:38AM</p> <p>21 procedure were -- are in the -- are in the standard</p> <p>22 operating procedure of North Wind that was sent to</p> <p>23 him.</p> <p>24 Q Okay. Did you explain your results to him?</p> <p>25 A He knows about the -- he knows we're using the 09:38AM</p> <p style="text-align: center;">32</p>
<p>1 A Yes, uh-huh.</p> <p>2 Q Now, what is the purpose of having another lab</p> <p>3 cross validate North Wind's work?</p> <p>4 A The purpose of having another lab cross</p> <p>5 validate is to -- is to -- well, just that. In 09:36AM</p> <p>6 science -- in science cross validation by other</p> <p>7 groups -- independent validation of test results is</p> <p>8 a major -- is a way that we test the reliability of</p> <p>9 the assay.</p> <p>10 Q Now, the E-mail we were just looking at refers 09:36AM</p> <p>11 to Mike Sadowsky?</p> <p>12 A Uh-huh.</p> <p>13 Q Is that who you retained to cross validate?</p> <p>14 A Yes. Mike Sadowsky at University of Minnesota</p> <p>15 is working on this. 09:37AM</p> <p>16 Q Okay. Who is Mike Sadowsky?</p> <p>17 A Mike Sadowsky is a professor of microbiology</p> <p>18 at the University of Minnesota. He's one of the</p> <p>19 leading environmental microbiologists in the</p> <p>20 country. 09:37AM</p> <p>21 Q When was he retained?</p> <p>22 A I believe it was May 2008, May or June 2008.</p> <p>23 Q Did you all work out your contracting issues?</p> <p>24 A Yes.</p> <p>25 Q Okay. Have you worked with him before? 09:37AM</p> <p style="text-align: center;">31</p>	<p>1 poultry litter biomarker in the watershed, in the</p> <p>2 IRW watershed, and that we're using it as a tracer</p> <p>3 or a marker for poultry litter contamination. I</p> <p>4 didn't go into depth explaining what we found beyond</p> <p>5 the fact that the qPCR assay seems to work really 09:39AM</p> <p>6 well.</p> <p>7 Q And is he familiar with the context of this</p> <p>8 lawsuit?</p> <p>9 A I wouldn't say he's familiar with it. I'd say</p> <p>10 he's heard about -- he's heard very briefly about 09:39AM</p> <p>11 the lawsuit but certainly not any of the details.</p> <p>12 Q But he knows he's been retained to validate</p> <p>13 something that's being used in a lawsuit?</p> <p>14 A Correct.</p> <p>15 Q What materials was he given? 09:39AM</p> <p>16 A Wow. The standard operating procedure of</p> <p>17 North Wind for the qPCR, the -- a set of samples</p> <p>18 that are coded that have no reference to source, and</p> <p>19 a plasmid, so a piece of DNA that has the biomarker</p> <p>20 sequence cloned into it so he can use that for a 09:40AM</p> <p>21 positive control.</p> <p>22 Q How many samples was he given?</p> <p>23 A Somewhere around 30 I believe.</p> <p>24 Q Do you know which samples he was given?</p> <p>25 A I can't tell you off the top of my head. I 09:40AM</p> <p style="text-align: center;">33</p>

<p>1 know there was some fecal samples of -- from sewage 2 treatment plants, some -- or DNA extracts from human 3 sources, cattle sources, goose and duck sources, and 4 then some environmental -- extracts from 5 environmental samples, like edge of field samples, 09:41AM 6 water samples and soil samples, and then poultry 7 litter samples as well, DNA extract from poultry 8 litter samples. So just to clarify, he doesn't have 9 any of the raw samples. He has DNA extracts from 10 these samples that were extracted by North Wind's 09:41AM 11 lab. 12 Q Exhibit 5, as I read it, lists the samples 13 that were going to be provided to Mr. Sadowsky, 14 Professor Sadowsky I should say. Does this look 15 generally correct to you? 09:41AM 16 A Yes. 17 Q What were the criteria that were applied to 18 select which samples would be given to him? 19 A Well, we definitely wanted him to have some 20 positive samples where we would expect -- where we 09:42AM 21 knew that we had quantified the biomarker, and we 22 wanted to give him some -- and we definitely wanted 23 to give him the non-target samples so that he could 24 verify the specificity of the analysis, and then we 25 wanted to give him some water samples that had high 09:42AM</p> <p style="text-align: center;">34</p>	<p>1 quite a bit of North Wind samples that were already 2 collected I think by your experts. 3 MR. TODD: Right. I know a bunch of 4 samples were shipped to Dr. Myoda's outfit. I'm 5 just not sure that they were given the extract of 09:43AM 6 the DNA from the Brevibacterium. So we'll circle 7 back on that. 8 Q What is the status of Professor Sadowsky's 9 work? 10 A He's -- we have received some communication 09:43AM 11 from him that the assay is running in his lab, and 12 he's tested some of the non-target samples, the 13 samples from other species, and found those to be 14 negative. He's sampled all of the -- or he's tested 15 all of the litter extracts and found them to be 09:44AM 16 positive, and he's actually in the process of asking 17 North Wind for some more DNA extract, so they need 18 to send them more samples. 19 Q Now, when he's done with all of his work, is 20 he supposed to submit a written report to you of 09:44AM 21 some sort? 22 A I believe so. 23 Q Okay. Do you have any idea when you should 24 expect that? 25 A I'm thinking -- well, he's off to Thailand 09:44AM</p> <p style="text-align: center;">36</p>
<p>1 concentrations of the biomarkers, some that had low 2 but detectable concentrations, and then some in 3 which we had not detected. 4 MR. TODD: Could whoever just joined us 5 identify himself? 09:42AM 6 MS. GRIFFIN: It was Jennifer. My phone 7 dropped off. 8 MR. TODD: Okay. 9 Q You mentioned the plasmin that they used, 10 which I think is the DNA extracted from the 09:42AM 11 Brevibacterium? 12 A Correct. The plasmin contains the DNA that's 13 amplified from the Brevibacterium, uh-huh. 14 Q Do you know whether a sample of that has been 15 provided to the defendants? 09:43AM 16 A I do not know. 17 MR. TODD: I'll submit you something in 18 writing to request that as well. 19 MR. PAGE: Well, I don't think she still 20 has it, but I think there were a lot of samples 09:43AM 21 provided. 22 MR. TODD: I'll check to see whether we 23 have it and if not, I'll submit you something in 24 writing. 25 MR. PAGE: Okay, because I think there was 09:43AM</p> <p style="text-align: center;">35</p>	<p>1 next week actually, but I'm thinking that we would 2 have results at least sometime in August. 3 Q Let's look to Exhibit 3, Subtask 3, which, as 4 I understand it, appears to be testing for 5 Salmonella and Campylobacter in the IRW using a PCR 09:45AM 6 assay. 7 A Uh-huh. 8 Q Has that been done yet? 9 A No, and we actually decided not to do that. 10 Q Why not? 09:45AM 11 A Basically expense and then we felt like we 12 established the connection with the indicator 13 bacteria. 14 Q Okay, and Subtask 4 just refers to technical 15 memoranda summarizing the results of Subtasks 1 09:45AM 16 through 3. Do you know if any of those have been 17 prepared yet? 18 A Those would not have been prepared yet. 19 Q Let's go ahead and turn to your report now, 20 which you have as Exhibit 1 right there, and we're 09:45AM 21 going to march through this page by page and 22 hopefully get us all out of here at a reasonable 23 hour. Let me direct you first to Page 3. Section 2 24 of your report here that starts by discussing 25 waterborne disease, and while your report seems to 09:46AM</p> <p style="text-align: center;">37</p>

10 (Pages 34 to 37)

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